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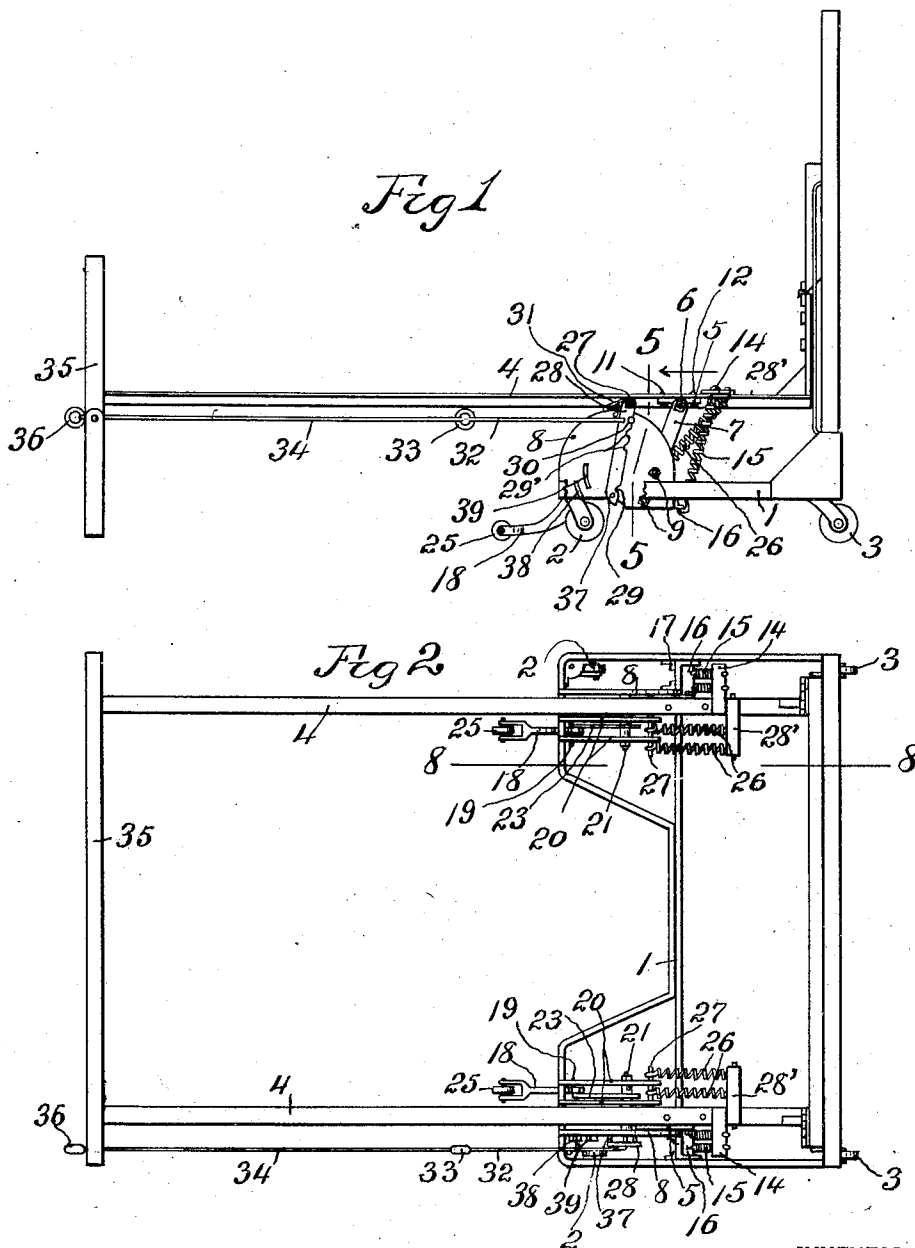
W. C. RANSOM

1,746,906

FOLDING BED

Filed July 26, 1928

3 Sheets-Sheet 1



INVENTOR.
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His ATTORNEY.

Witness
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3 Sheets-Sheet. 2

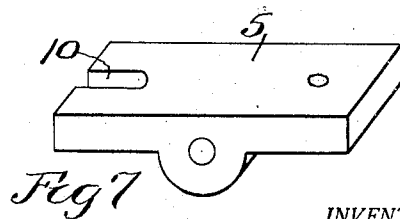
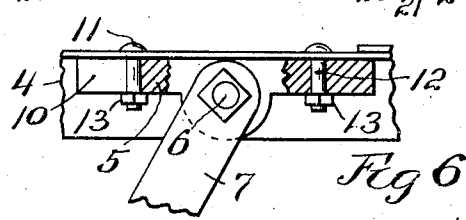
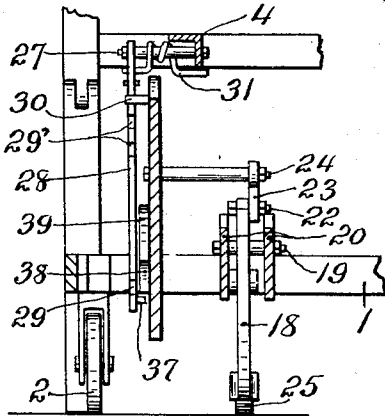
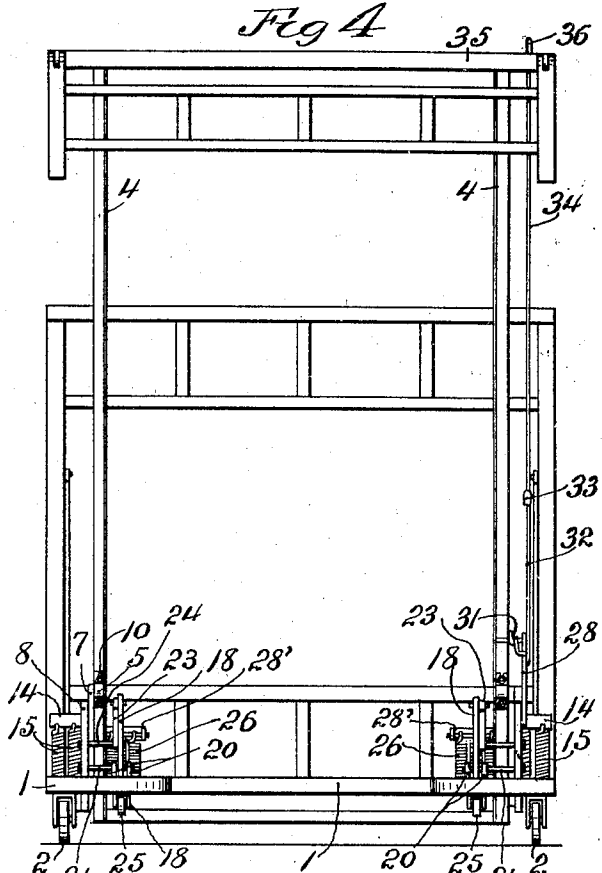
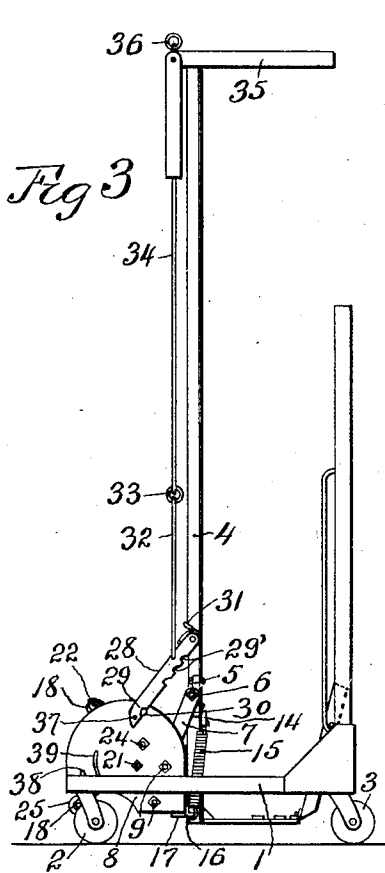


Fig 5

Fig 7

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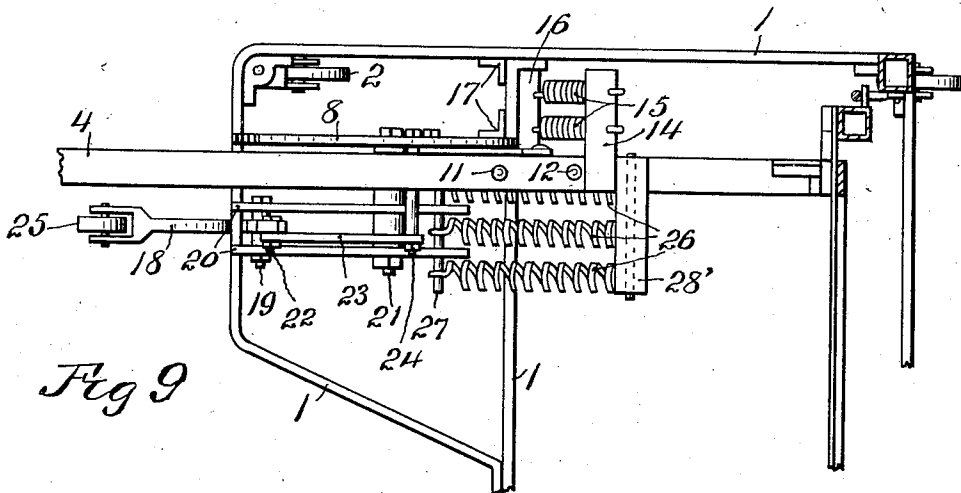
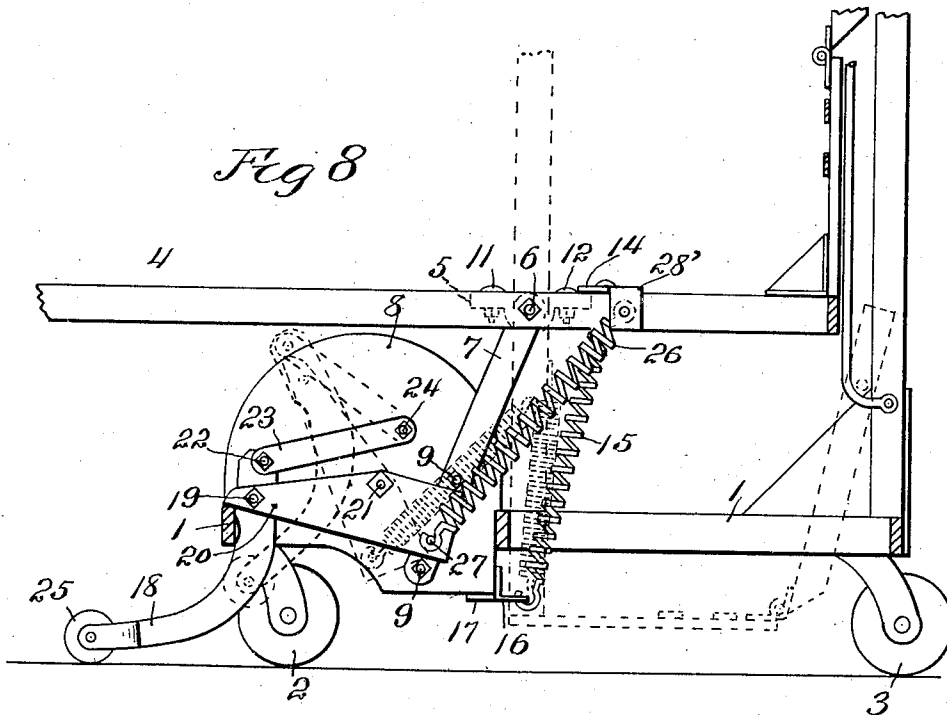
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

WILLIAM C. RANSOM, OF KANSAS CITY, MISSOURI

FOLDING BED

Application filed July 26, 1928. Serial No. 295,432.

My invention relates to improvements in folding beds. It relates particularly to folding beds in which springs are employed as a counterbalance for the bed bottom.

One of the objects of my invention is to provide novel means for preventing the upward tipping of the base, which pivotally supports the bed bottom, when the bed bottom is swung toward the horizontal position.

A further object of my invention is to provide a construction for effecting this function, which is simple, cheap, strong, durable, not likely to break or get out of order, and which can be readily applied to bed structures such as are in common use.

Still another object of my invention is the provision of simple means for pivotally supporting the bed bottom on the base, that enables the bed bottom to be easily and quickly mounted on the base.

Another object of my invention is to provide novel means for locking the bed bottom in its horizontal and in its upright positions.

The novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings, which illustrate the preferred embodiment of my invention,

Fig. 1 is a side elevation, partly broken away, of a folding bed provided with my improvement, the bed bottom being shown in the horizontal position.

Fig. 2 is a plan view of the same.

Fig. 3 is a side elevation showing the bed bottom upright.

Fig. 4 is a front elevation of what is shown in Fig. 3.

Fig. 5 is an enlarged section on the line 5-5 of Fig. 1.

Fig. 6 is an enlarged side view, partly in elevation and partly broken away of one of the bed bottom bearing members and parts connected therewith.

Fig. 7 is an enlarged perspective view of the bottom bearing member shown in Fig. 6.

Fig. 8 is an enlarged section on the line 8-8 of Fig. 2.

Fig. 9 is a top view of what is shown in Fig. 8.

Similar reference characters designate similar parts in the different views.

The base of my improved folding bed comprises a substantially rectangular frame 1 provided with supporting means at its four corners consisting of two front casters 2 and two rear casters 3.

Pivotally mounted on the base is a bed bottom, which is arranged to swing from the vertical to the horizontal, and which has two angle bar side rails 4. Respectively mounted on the under sides of the rails 4 are two rail supporting members 5 respectively pivoted to swing from the horizontal to the vertical on two horizontal bolts 6, which are respectively mounted transversely in the upper portions of two bars 7, which are rigidly secured to the inner sides of two vertical plates 8 by bolts 9, Figs. 3, 4, 6 and 8, which are fastened to the frame 1 respectively adjacent to the front corners thereof.

Mounted in each rail supporting member 5, in a slot 10 provided in the front or upper end thereof, is a bolt 11 which extends through the top of the adjacent rail 4. Another bolt 12 extends through said rail 4 and through a hole provided in the member 5, Fig. 6.

This construction permits of a heavy bed bottom being easily and quickly mounted on the supporting base. In effecting such mounting, the front bolts 11 are inserted in the rails 4. The members 5 are then swung on the bars 7 to the vertical position, after which the bed bottom, while in the upright position, is slipped downwardly on the members 5 with the bolts 11 respectively entering the slots 10. The bolts 12 are then inserted respectively through the rails 4 and the members 5, thus securely fastening the bed bottom to the members 5, the nuts 13 on the bolts 11 and 12 having been tightened against the members 5.

The bed bottom may now be swung to and from the horizontal. To counterbalance it during the initial part of its movement in swinging from the vertical toward the horizontal, the side bars 4 have respectively fastened to them two transverse plates 14, Figs. 2 and 8, to which plates are fastened

the upper ends of four coil springs 15, two to each plate 14, the lower ends of said spring being fastened to two plates 16 mounted on two pairs of vertical angle plates 17 supported by the frame 1.

The plates 14 are fastened to the rails 4 at the rear of the pivot bolts 6.

When the bed bottom is swung from the vertical to the horizontal, the pull of the springs 15 on the base tend to swing the rear end of the latter upwardly with the front casters 2 as the fulcra. To prevent such tilting, or "jack knifing", as it is sometimes called, I provide novel bracing means, actuated by the forward swinging of the bed bottom, for engaging the floor forward of the casters 2, and holding the base from such tilting.

Such bracing means comprises two brace members 18 respectively pivoted by two horizontal transverse bolts 19 respectively mounted in two pairs of levers 20 pivoted by bolts 21 to the two plates 8 respectively.

Also respectively pivoted to the brace members 18 by two bolts 22, Figs. 8 and 9, are two guiding plates 23, which are respectively pivoted to the plates 8 by bolts 24.

Each brace member 18 is provided with a friction roller 25 which is adapted, when the levers 20 are swung from the positions shown in dotted lines in Fig. 8, to the position shown in solid lines in said figure, to bear against the floor at a point considerably forward of the adjacent caster 2.

For oscillating the levers 20 to the positions shown in dotted and solid lines in Fig. 8, I provide two sets of coil springs 26, three in each set, the lower ends of the springs of each set being fastened to a transverse rod 27 which is mounted in the adjacent pair of levers 20 at the rear of the pivot bolt 19 on which said levers are mounted.

The upper ends of the springs 26 of each set are fastened to a transverse plate 28' which is fastened to the adjacent side rail 4 of the bed bottom, at the rear of the pivot bolt 6, Figs. 8 and 9.

When the bed bottom is in the upright position, shown in dotted lines in Fig. 8, the coil springs 26 will be, as shown in dotted lines in said figure, with their coils against each other. The springs will thus force the levers 20 to and hold them in the positions shown in dotted lines in Fig. 8, thereby, due to the guiding plates 23, causing the brace members 18 to be withdrawn to the positions shown in dotted lines in Fig. 8, in which positions none of the bracing means will project forward of the frame 1.

If now the bed bottom is swung forwardly from the vertical, the springs 26 will swing the levers 20, so that they will be in the position shown in solid lines in Fig. 8, and the rollers 25 will be against the floor.

During the forward movement of the bed

bottom, after the rollers 25 have touched the floor, and the levers 20 have contacted with the frame 1, at the forward ends of the levers, Fig. 8, the springs 26 will be stretched, and will serve the function of counterbalancing the bed bottom. The springs 26 thus perform the double function of oscillating the levers 20, to force the brace members 18 to the bracing position and retract them from such position, and that of counterbalancing means for the bed bottom, which function becomes effective after the bed bottom has been swung well forward of the vertical.

By this arrangement of the springs 26 and the springs 15 no weights are required to counterbalance the bed bottom, and by the employment of the bracing means described, the base will not tilt, when the bed bottom is swung forwardly to the horizontal, due to the rollers 25 resting on the floor and the brace members 18 being pivoted by the bolts 19 to the levers 20, and with their upper ends exerting a thrust rearwardly on the plates 8 through the plates 23.

To releasably hold the bed bottom in the upright and in the horizontal positions, there is pivoted to the side of one side rail 4 by a transverse bolt 27, Figs. 1, 3 and 5, a locking lever or bar 28, the under edge of which is provided near its free end with a notch 29 adapted to receive a pin 30 extending laterally from the adjacent plate 8, and which, when in the notch 29, as in Fig. 3, holds the bed bottom upright.

A spring 31 which is fastened to the rail 4 and which bears on the upper edge of the locking bar 28, normally forces the latter toward the pin 30.

To hold the bed bottom from accidental upward swinging from the horizontal or intermediate positions, the under side of the bar 28 is provided with a row of ratchet notches 29' that permit the locking bar to slip downwardly against the pin 30, but which will receive the pin and hold the bar 28 from moving upwardly.

To release the locking bar 28 from the pin 30, the bar has fastened to it a flexible member, such as a wire 32 connected to a ring 33, which in turn has fastened to it a wire 34, which is slidably extended through the foot 35 of the bed bottom, and which outside the said foot has attached to it a ring 36, which by pulling, the locking bar 28 is released from the pin 30.

To prevent the locking bar 28 swinging, after the ring 33 is released, so as to have the pin 30 enter the notches 29', and hold the bed bottom from upward swinging, the bar 28 is provided near its free end with an inwardly extending pin 37 which, when the ring 33 is pulled to draw the locking bar 28 from the pin 30, and the bed bottom is horizontal, will strike a curved guide 38 on the plate 8 adjacent thereto, and will then pass

upwardly, as the bed bottom swings upwardly, at the front of another curved guide 39 on the adjacent plate 8, which latter guide will hold the bar 28 from swinging rearwardly until the pin 37 passes upwardly from the guide 39, at which time, the notches 29' will have passed above the pin 30.

I do not limit my invention to the structure shown and described, as many modifications, within the scope of the appended claims, may be made without departing from the spirit of my invention.

What I claim is:—

1. In a folding bed, the combination with a base having front supporting means adapted to rest on the floor, and a bed bottom fulcrumed on said base so as to swing to and from the horizontal, of a lever pivoted to said base, a brace member pivoted to said lever, guiding means by which, when said lever is oscillated, said brace member will be moved to and from a position in which it will bear against the floor forward of said front supporting means, and a spring connecting said lever and said bed bottom by which when the bed bottom is swung a predetermined distance toward the horizontal, said lever will be swung so as to force said brace member against the floor.

2. In a folding bed, the combination with a base having front supporting means adapted to rest on the floor, and a bed bottom fulcrumed on said base so as to swing to and from the horizontal, of two levers pivoted to said base on different axes, a brace member pivoted on different axes to said levers and arranged, when one of said levers is oscillated to be moved to and from a position in which it will bear against the floor forward of said front supporting means, and means connecting said one lever and said bed bottom by which, when the bed bottom is swung a predetermined distance toward the horizontal, said one lever will be swung so as to force said brace member against the floor.

3. In a folding bed, the combination with a base having front supporting means adapted to rest on the floor, and a bed bottom fulcrumed on said base so as to swing to and from the horizontal, of two levers pivoted to said base on different axes, a brace member pivoted on different axes to said two levers and arranged, when one of said levers is oscillated to be moved to and from a position in which it will bear against the floor forward of said front supporting means, and a spring connecting said one lever with said bed bottom by which, when the bed bottom is swung a predetermined distance toward the horizontal, said one lever will be swung so as to force said brace member against the floor.

4. In a folding bed, the combination with a base having front supporting means adapted to rest on the floor, and a bed bottom fulcrumed on said base so as to swing to and

from the horizontal, of a brace member, means including a lever carrying and pivotally supporting said brace member and pivoted to said base by which, when said lever is oscillated, said brace member will be moved to and from a position in which it will bear against the floor forward of said front supporting means, and a spring connecting said lever and said bed bottom arranged, when said bed bottom is swung a predetermined distance toward the horizontal, to swing said lever to force said brace member against the floor.

5. In a folding bed, the combination with a base having front supporting means adapted to rest on the floor, and a bed bottom fulcrumed on said base so as to swing to and from the horizontal, of a brace member, means including a lever pivoted to said base by which, when said lever is oscillated, said brace member will be moved to and from a position in which it will bear against the floor forward of said front supporting means, and a spring connecting with said lever and attached to the bed bottom at the rear of the fulcrum point of the latter and arranged, when the bed bottom is swung a predetermined distance toward the horizontal, to swing said lever so as to force said brace member against the floor and serving as a counter balance for said bed bottom, and arranged to swing said lever in the opposite direction, when the bed bottom is swung from the horizontal.

6. In a folding bed, the combination with a base having front supporting means adapted to rest on the floor, and a bed bottom fulcrumed on said base so as to swing to and from the horizontal, of a lever pivoted on a horizontal axis to said base, a brace member carried by and pivoted on a horizontal axis to said lever at one side of the axis of the latter, means connected to said lever at the other side of its axis and to said bed bottom, by which the lever is oscillated when the bed bottom is swung toward and from the horizontal, and a guiding means connecting the base and brace member by which when the bed bottom is forwardly swung toward the horizontal, the brace member will be brought in contact with the floor forward of the axis of the brace member, and when the bed bottom is swung from the horizontal, the brace member will be lifted by said lever and carried upwardly and rearwardly.

In testimony whereof I have signed my name to this specification.

WILLIAM C. RANSOM.